



Annual Report

2008-2009 • Program Highlights from Washington Sea Grant





From the Director

The year 2008 was productive for Washington Sea Grant, focused on strategic planning and developing a blueprint for the program over the next five years. Throughout the year, we looked for ways to enhance and, in many instances, expand our research, outreach, education and communications and to further our mission by:

- Identifying and addressing important marine issues
- Providing better tools for management and use of the marine environment and its resources
- Initiating and supporting strategic partnerships within the marine community.

Our portfolio of WSG-managed research grew substantially with the launch of four major research projects examining the possible environmental impacts of geoduck clam aquaculture. Although the state has experienced a tremendous surge in interest in geoduck farming, managers lack the information to assess the possible benefits and drawbacks of this relatively recent and potentially lucrative commercial endeavor. WSG-initiated research, requested and funded by the Washington State Legislature, will contribute much-needed data to better manage this fast-growing industry and ensure sustainable harvests without harming the aquatic environment.

Adding to an already outstanding year for outreach, in 2008 we partnered with the Washington Department of Ecology and the Padilla Bay National Estuarine Research Reserve to reinvigorate the Shoreline and Coastal Planners Group. The group now provides a forum for discussion of policy concerns, new technologies, emerging issues and changing regulations. Planners at the city, county and state levels interact with each other while receiving science, policy and planning-oriented instruction from experienced professionals in their fields.

We also broadened our education efforts throughout the year. In the summer of 2008, we expanded the popular NOAA Science Camp to offer a second session and provide opportunities for twice as many seventh- and eight-grade campers to share in this exciting, hands-on approach to improving ocean science literacy. We also made substantial progress on WOW, our Washington on Water Web site for educators, and its searchable database of information on marine science topics and opportunities for professional development and classroom support.

In addition to meeting our internal and partner needs, WSG Communications staff shared its expertise with a roster of new clients, including the Joint Institute for the Study of the Atmosphere and Ocean, NOAA's Northwest Fisheries Science Center and the West Coast Governors' Agreement on Ocean Health. We're pleased that our communicators are in high demand and look forward to further collaborations with these and other agencies and entities in the years to come.

Of course, this is a tiny sampling of the numerous individual and collective accomplishments of WSG's Marine Advisory Services, Education, Communications and Administration staff. The following report offers a much fuller picture of our achievements throughout 2008. We invite you to familiarize yourselves with our activities — and to participate in future workshops, public forums and special events serving those who manage, use and enjoy Washington's ocean and coasts.

Penelope Dalton

Penelope Dalton
Director, Washington Sea Grant



Washington Sea Grant: The Program in Context

For more than 40 years, Washington Sea Grant (WSG) has served the Pacific Northwest and the nation by funding marine research and working to strengthen understanding and sustainable use of ocean and coastal resources. Based at the University of Washington, the program is part of a national network of 32 Sea Grant programs located in every coastal and Great Lakes state and in Puerto Rico. The Sea Grant program is administered by the National Oceanic and Atmospheric Administration (NOAA) and funded through federal-state partnerships.

WSG is involved in implementing the Puget Sound Partnership's action agenda to restore and protect Puget Sound. It is also a member of the State Ocean Caucus, established to implement an action plan for improving protection and management of Washington's ocean and coastal resources. On a larger regional scale, WSG is actively collaborating with NOAA's Western Region, the other West Coast Sea Grant programs and the West Coast Governors' Agreement on Ocean Health.

The state of Washington resides within one of the world's most productive ocean and coastal regions, providing a bounty of resources associated with fisheries, tourism, alternative energy and habitat for threatened and endangered species. It serves as a gateway to Alaska and is interconnected through commerce and shared resources with other nations of the Pacific Rim. Residents and visitors draw deep cultural, aesthetic and spiritual benefits from the ocean and its surroundings.

Washington's ocean environment is strongly influenced by the colder waters of the California Current and is characterized by temperate marine flora and fauna. Rocky northern shores support prolific assemblages of marine animals and plants. Winding eastward and to the south are Puget Sound, Grays Harbor and Willapa Bay, three of the largest and most productive estuaries along the West Coast. The nutrient-rich sediment plume of the Columbia, one of the continent's largest rivers, varies seasonally and exerts its influence over a broad area at the Washington-Oregon border.

Coastal Washington is a study in contrasts — geographically, ecologically, socially and culturally. The outer coast is a region of low population densities, small ports, natural resource-based economies and multigenerational fishing families and has limited access to goods, services and infrastructure. However, the Puget Sound basin is a hub of activity, home to about 3.5 million people — more than half the state's population. By 2025, an estimated 5.2 million people will populate the area.

The Puget Sound region is characterized by diversified urban economies and is home to the ports of Seattle and Tacoma, among the largest container ports in North America. The region also faces significant concerns about polluted waters, habitat loss and declines in native species.

Puget Sound and the outer coast combine to give Washington the fourth-largest ocean economy among U.S. states, as well as unparalleled natural beauty. Washington Sea Grant is working to maximize the productive use of marine resources while preserving the essential qualities of a healthy marine environment.



Washington Sea Grant Research

An important component of Washington Sea Grant's mission, WSG-funded research continues to shed light on issues facing the state's marine resource managers, coastal communities, tribal and non-tribal fishermen and others with strong ties to Puget Sound and the outer coast.

Throughout the year, WSG provided support for 31 research projects, including five NOAA Fisheries-Sea Grant Fellowships in Population Dynamics. Three additional projects were supported with program development funds. Highlights from several projects are presented in this report. Details on all WSG-funded research projects are provided on the WSG Web site at wsg.washington.edu/research/index.html.

Four new state-funded research contracts to assess the possible environmental impacts of geoduck clam aquaculture were initiated in 2008. Geoduck aquaculture is becoming a valuable industry for the state and its neighbors, with a market currently estimated at about \$80 million annually in Washington and British Columbia. WSG-led research will expand the scientific basis for revising the state coastal aquaculture regime, strengthen relationships with NOAA and coastal managers and explore opportunities to minimize any negative impacts of aquaculture while maintaining the economic benefits from this endeavor.



▲ In 2008, a second Sea Grant-funded cruise to the extensive glass sponge reefs off the Washington coast revealed the presence of methane seeps — possible sources of nutrients for an array of organisms that thrive in what was once regarded as a “dead zone,” totally devoid of life. The glass sponges themselves are worthy of close study. Prior to their discovery in British Columbia several years earlier, it was thought that these reef-building invertebrates had become extinct during the Age of Dinosaurs.

WSG-funded research is examining the ecological benefits of complex intertidal habitats, installed into vertical seawalls along the Seattle shoreline in 2008. This enhanced environment is now being monitored for benefits to fish, marine invertebrates and plants and will help guide the upcoming reconstruction of the Seattle seawall and similar structures in aquatic settings. ►

Also in 2008, researchers evaluated the impacts of ambient noise on Washington's endangered resident killer whales. Among other things, the study identified aircraft noise as a significant source of underwater sound in Puget Sound. ▼



Washington Sea Grant Education

In 2008, WSG continued to sponsor the innovative "science-under-sail" program Salish Sea Expeditions. This program provides an inquiry-based education opportunity for students from fifth through 12th grades. Participants design and conduct real scientific research from the decks of a 61-foot sailing vessel on Puget Sound. ►



WSG accepted the role of coordinator for Orca Bowl, the state's regional component of the National Ocean Sciences Bowl. WSG helped recruit high school teams, managed registrations and assisted with volunteer training and event logistics. Thirteen teams from eight Washington schools registered in 2008, with the winning team, from the Vancouver, Wash., ExCEL Academic League, traveling to Washington, D.C., for the national finals. ►

In partnership with NOAA, WSG Education was again a key contributor to the educational development and evaluation of NOAA Science Camp for middle-school youth. The weeklong camp was held in July at NOAA's Western Regional Center in Seattle. To meet popular demand, an additional session was added, enabling twice as many campers to attend. Through the camp's emphasis on hands-on education and self-discovery, participants are encouraged to learn about NOAA science and urged to explore their roles as young scientists-in-training. Simultaneously, WSG provides high school, undergraduate, graduate students and working educators with opportunities to work at the camp and learn more about NOAA's education resources and science-based careers.

Education staff continued to refine its vision for WOW: Washington on Water, a marine education resources Web site. A unique electronic resource center with regional scope and impact, WOW will provide Washington educators with comprehensive and accessible information on marine science topics and opportunities for professional development and classroom support. By linking marine educators and resources, WOW will nurture partnerships between those with inquiry-based science programs and those who need them.

WSG Education also increased its commitment to support undergraduate and graduate students' efforts in academic advancement, policymaking and career development. In 2008, the first fellows were selected for the Marc Hersman Marine Policy Fellowship, a state



fellowship through which eligible graduate students or recent graduates are placed with member agencies of the Washington State Ocean Caucus in Olympia. In addition to WSG, caucus members includes the Governor's office, Department of Ecology, Department of Natural Resources, Department of Fish and Wildlife, Department of Health and Department of Community, Trade and Economic Development, as well as the State Parks and Recreation Commission and Military Department Emergency Management Division.

Recruitment for the Knauss fellowship continued to be successful. In 2008, two fellows from Washington state were placed in legislative offices in the nation's capital, assisting Sens. David Vitter, R-La., and Patty Murray, D-Wash. In the 30-year history of the Knauss Fellowship, more than 60 fellows have been selected from WSG — more than from any other program in the Sea Grant network.

Washington Sea Grant Communications

In 2008, WSG Communications capitalized on its reputation for writing, designing and producing informative, engaging flyers, posters, conference programs, annual reports and other materials. The team developed products for in-house use and for clients, including the Joint Institute for the Study of the Atmosphere and Ocean, NOAA's Northwest Fisheries Science Center and the West Coast Governors' Agreement on Ocean Health.

Communications also assisted in drawing media attention for several issues and events, including Orca Bowl, the Seattle seawall research project, the 16th Shellfish Growers Conference, seabird bycatch avoidance, geoduck aquaculture research, WSG's 40th Anniversary and the annual NOAA Science Camp.

Nurturing student communication skills remains a priority and, to meet this goal, Communications provided writing opportunities and internships for several students. The newly established WSG Science Writing Fellowship enabled three postgraduate fellows to further develop their skills at communicating marine science topics to broad audiences in 2008. Their reportage of WSG-funded research and outreach projects appeared on the front pages of two of the four issues of WSG's newsletter *Sea Star* published in 2008.

Several suites of new pages were added to the WSG Web site in 2008. Visits to this interactive resource continued to increase, from an average of about 3,700 per month in 2007 to more than 4,000 per month in 2008.

Communications-designed Kitsap Beach Naturalists caps are popular items among environmental stewards along the Kitsap Peninsula's 360-plus miles of shoreline habitat. ▼

New in 2008: three large portable displays. These eye-catching "window-shade" units are now helping to spread the word about WSG at conferences, workshops, county fairs and other events. Similar signage is now in the works to promote several other WSG projects. ▼



Marine Advisory Services

The metrics for WSG Marine Advisory Services in 2008 are impressive and speak for themselves: MAS conducted 23 marine education programs for children and families during the reporting period, reaching 1,676 individuals with instruction. In addition, 102 Sea Grant-sponsored adult events reached 3,133 individuals and another 5,052 individuals attended 196 events in which MAS staff made presentations. Staff made 261 radio appearances and supervised a total of 1,220 volunteer hours. In short, it was a busy but rewarding year.

Of equal or greater importance than the metrics, MAS worked with diverse stakeholders to achieve outcomes that directly affect the health and vitality of Washington's marine resources and coastal residents. MAS remains at the forefront of applied research and outreach pertaining to water quality and safe commercial and recreational shellfish harvests. Its marine habitat expertise is in constant demand from resource managers, city planners, parks and recreation staff and others.

In May 2008, Marine Education Coordinator Sarah Fisksen, Marine Field Agent Steve Harbell and Eric Olsson, WSG's Oil Spill Prevention Education Specialist, conducted safety training exercises for more than 400 crewmembers of American Seafood's factory trawler fleet. Conducted at Fishermen's Terminal in Seattle, in collaboration with the U.S. Coast Guard's Marine Safety Office, NOAA Fisheries and other organizations, the hands-on training was in response to the sinking of a similar vessel in the Bering Sea this past spring. ▼

Working with the Washington Department of Ecology and the Padilla Bay National Estuarine Research Reserve, MAS is strengthening its focus on coastal communities to provide innovative outreach and technical training for coastal planners and other decision-makers. In addition, MAS has developed a partnership with Puget Soundkeeper Alliance to engage and certify marinas for Clean Marina Washington.

MAS continues to build its relationship with the marine industry. The award-winning WSG seabird bycatch mitigation program is completing its work with the Alaska longline and trawl fisheries and is now turning its attention to vital work on the Pacific Coast and in the international arena. Vessel safety training classes for both tribal and non-tribal commercial fishermen save equipment and lives, while crabber-towboat lanes along the coasts of Washington, Oregon and California are negotiated annually and minimize loss of fishing gear and damage to work boats.

Two-thirds of MAS staff works on water quality issues pertaining to Puget Sound. The program is fully involved with development and implementation of the Puget Sound Partnership's action agenda.





▲ The year 2008 saw initiation of a major effort to train retail seafood apprentices in the United Food and Commercial Workers Union in sustainable seafood education, handling and merchandising.



▲ As she's done for several prior summers, Teri King, WSG Marine Water Quality Specialist in Mason County, worked with Hood Canal and South Puget Sound residents in 2008 to ensure that the shellfish on their beaches were safe to eat. For the State of the Oyster Study, waterfront residents gather oysters and clams from their beaches, delivering them to drop-off stations, where the samples are sent to a lab for testing. If the test results reveal high bacteria levels, King recommends actions for people to keep their beaches disease-free. Through the years, the SOS project has helped waterfront residents on more than 300 Washington beaches.



Washington Sea Grant Administration

During 2008, Washington Sea Grant made many improvements to strengthen its internal operations. Once initiated, these improvements will help meet program constituents' needs, assist WSG staff in planning and implementing new projects and substantially enhance future contributions to the national Sea Grant network.

Much time and energy were devoted to the drafting of the program's strategic plan for 2010-2014 — an effort that involved the entire staff, the WSG Advisory Committee, the University of Washington and other academic institutions, as well as maritime businesses, resource managers and other constituents. The result of this effort is a detailed planning document that establishes WSG's direction for the next five years and articulates guidelines for future program planning, implementation and evaluation. As a roadmap for future activities, the strategic plan will greatly assist WSG in fulfilling its mission: to improve the translation of research and scientific information into knowledge for use in the marine environment.

Completed in 2009, the Regional Research and Information Plan for the California Current Large Marine Ecosystem is now guiding collaborative efforts among a full range of regional information providers and end-users.

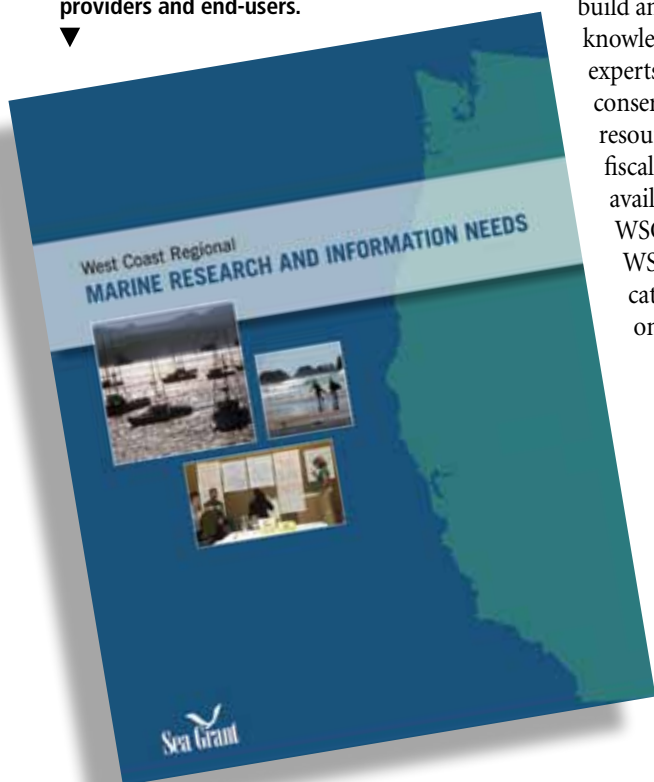
2008 was also a period of renewal and refinement of external relations with partners at the federal, state and local levels. WSG continued to fulfill its multifaceted role in the implementation of the Puget Sound Partnership's action agenda for the protection and restoration of Puget Sound and made further progress with the Sound Future initiative — a collaborative effort with Washington State University Extension to build an integrated network of knowledgeable residents and experts acting collectively to conserve the Sound's natural resources. Although current fiscal constraints limited the availability of new funding, WSG continued to work with WSU and other partners to catalyze public engagement on important Sound issues.

In October 2008, WSG lent support to the West Coast Governors' Ocean Action Teams Meeting. This event brought together stakeholders and key partners in the West Coast Governors' Agreement on Ocean Health to develop work plans and identify priorities for action to implement the agreement. Complementary to this process, WSG worked with other West Coast Sea Grant programs to complete the Regional Research and Information Plan for the California Current Large Marine Ecosystem. The product of extensive public input, this plan will aid in the transition to ecosystem-based management of marine resources and be used to encourage funding for high-priority research needs.

WSG also focused its energies on Washington's coastal communities and constituents through participation in the State Ocean and Puget Sound caucuses — collections of state agencies that provide forums for statewide discussion of issues such as marine habitat restoration, pollution abatement, coastal monitoring and ocean energy. Recommendations from the two caucuses have been incorporated into the priorities of the West Coast Governors' Agreement on Ocean Health and have helped shape the action agenda for protecting and restoring Puget Sound.



▲ **Marine Fisheries Research Associate Troy Guy joined the WSG team in 2008. Working closely with Marine Fisheries Senior Scientist Ed Melvin, Guy is helping to develop methods to reduce the incidental mortality of seabirds in international waters.**



WSG by the Numbers, 2008 – 2009

WSG-sponsored or organized meetings, workshops and conferences	105
Attendees	3,308
Media appearances and interviews	261
Public presentations	196
Attendees	5,052
Volunteer hours donated.....	2,084

WSG Student Support 2008-2009

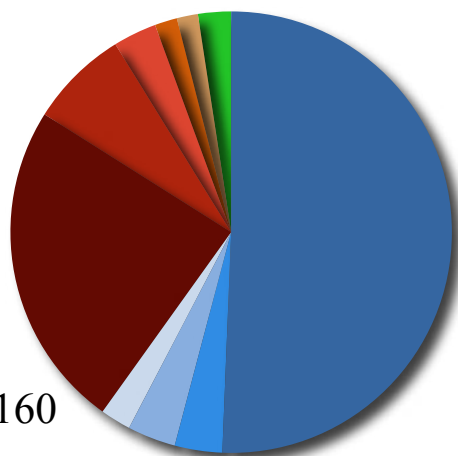
Knauss Fellows	2
Hershman Marine Policy Fellows	2
Sea Grant/NOAA Fisheries Fellows	5
WSG-supported undergraduate students	11
WSG-supported MS/MA graduate students	23
WSG-supported PhD graduate students	20

Program Awards and Honors

1. Jeff Adams selected for Coastal Academia seat on the Western Regional Panel on Aquatic Nuisance Species.
2. Penelope Dalton appointed as affiliate faculty member in the School of Marine Affairs, University of Washington.
3. Steve Harbell awarded a 2008 Western Extension Directors Association Award of Excellence.
4. Katrina Hoffman selected as member of Padilla Bay Sustainability Committee, 2008.
5. Katrina Hoffman appointed to the Working Waterfronts and Sustainable Coastal Economies Action Coordinating Team of the West Coast Governors' Agreement on Ocean Health.
6. Teri King re-elected Chair of the Pacific Coast Section of the National Shellfisheries Association, October 2008.
7. Teri King re-elected Treasurer of the Pacific Rim Shellfish Sanitation Association.
8. Teri King selected to be co-program chair for Aquaculture 2010, hosted by the National Shellfisheries Association.
9. Ed Melvin participated in Food and Agriculture Organization Expert Consultation on "Best practice technical guidelines for International/ National Plan of Action — Seabirds" in Bergen, Norway.
10. Ed Melvin presented International Council for Exploration of the Sea keynote on bycatch to the Alaska Fishery Science Center (AFSC) staff as part of the AFSC seminar series, at the invitation of the associate director; and moderated the Fisheries Interactions session at the Pacific Seabird Group annual meeting.
11. Nancy Reichley appointed to the Ocean Literacy and Education Action Coordinating Team of the West Coast Governors' Agreement on Ocean Health.
12. Raechel Waters invited to serve on the Northwest Straits Commission Science Team.
13. Raechel Waters appointed as faculty member in the School of Oceanography, University of Washington.

2008 Washington Sea Grant Funding

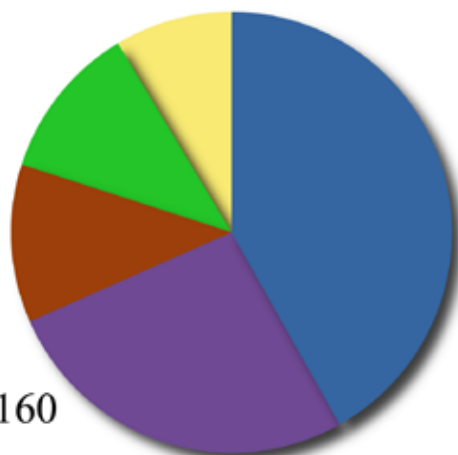
- SG Core Federal Grant
- SG Competitions
- SG Fellows
- Other Federal
- UW
- Geoduck
- PSP Water Quality
- Spill Prevention Education
- State & Local
- Foundations



Total - \$5,174,160

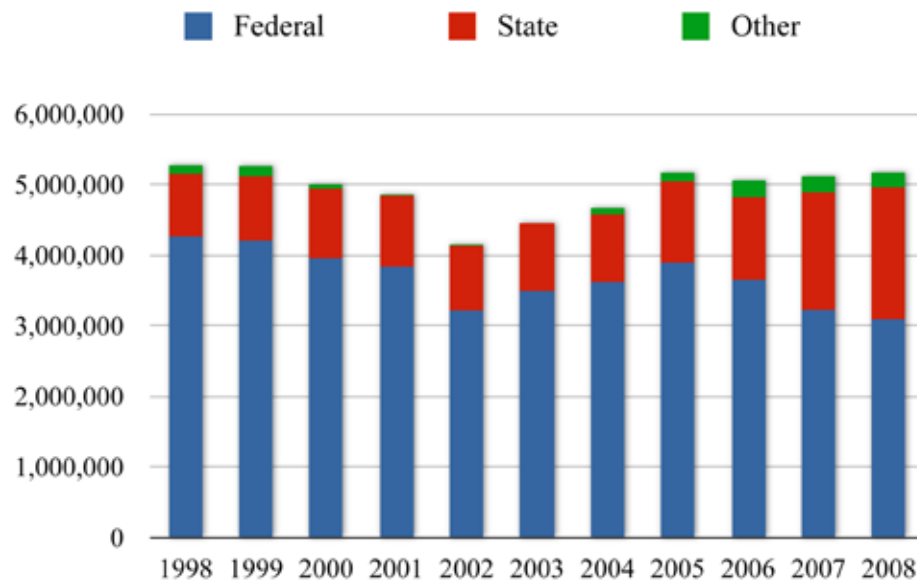
2008 Washington Sea Grant Program Elements

- Research
- Marine Advisory Services
- Administration
- Communications
- Education



Total - \$5,174,160

Funding Trends



Washington Sea Grant

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